

# THE ADVANCED RESEARCH PROJECTS AGENCY-ENERGY OVERVIEW

## ABOUT ARPA-E

The Advanced Research Projects Agency-Energy (ARPA-E) provides R&D funding for transformational ideas to create America's future energy technologies. ARPA-E focuses exclusively on early-stage technologies that could fundamentally change the way Americans get, use, and store energy.

ARPA-E funds innovative ideas from academia, private industry, national laboratories, start-up companies, and small businesses—providing project teams with an average award of \$2-3 million over several years. Every project team receives hands-on guidance to meet ambitious technical milestones that push the boundaries of energy innovation. ARPA-E's unique Technology-to-Market program also empowers project teams with business insight and strategies to accelerate their progression towards commercialization.

As of September 2020, ARPA-E has funded more than 975 energy technology projects across over 60 focused programs and open solicitations.

## ARPA-E HISTORY

In 2005, leaders from both parties in Congress asked the National Academies of Sciences, Engineering, and Medicine to identify concrete steps that federal policymakers could take to bolster U.S. competitiveness in science and technology as a means to help the United States prosper and stay secure in the 21st century. The Academies recommended that Congress establish an Advanced Research Projects Agency within the U.S. Department of Energy (DOE). In 2007, Congress passed, and President George W. Bush signed into law, the America COMPETES Act, establishing ARPA-E. In 2009, Congress appropriated the new agency's first \$400 million in funding.

ARPA-E is modeled after the successful Defense Advanced Research Projects Agency (DARPA) in the Department of Defense (DOD), the agency credited with such innovations as GPS, the stealth fighter, and computer networking.

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"Pound for pound, dollar for dollar, it's hard to find a more effective thing government has done than ARPA-E."

**-FedEX founder, chairman, president and CEO Fred Smith**

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## ARPA-E'S UNIQUE PROCESS

ARPA-E actively manages its projects, positioning them so partners are likely to commit to the next stage of development once ARPA-E's funding period is over. ARPA-E advances its early-stage technologies toward the market with results-oriented handoff strategies:

- **New company formation**, which takes place when ARPA-E project teams at labs or universities "spin out" their work, can facilitate and expedite the commercialization process for technologies.
- **Patents and publications** generated by ARPA-E project teams help advance scientific understanding and technology innovation.
- **Follow-on investment** from private investors during or after an ARPA-E award can provide project teams with the strategic funding needed to advance their technologies.
- **Strategic partnerships** with private companies that can license, acquire, and buy technologies help project teams progress along a clear path to market after their time with ARPA-E.
- **Public funding** from other government agencies, including the DOD and other DOE agencies, can advance projects after ARPA-E's initial funding.

As of September 2020, 172 ARPA-E projects have attracted more than \$6.3 billion in private-sector follow-on funding. In addition, 88 ARPA-E project teams have formed new companies to advance their technologies, and 232 ARPA-E projects have partnered with other government agencies for further development. Moreover, ARPA-E projects have generated 4,256 peer-reviewed journal articles, and 643 patents issued by the U.S. Patent and Trademark Office.

## ARPA-E ENERGY INNOVATION SUMMIT

The ARPA-E Energy Innovation Summit is the premiere U.S. energy technology innovation event. ARPA-E hosted the **2019 Energy Innovation Summit** on **July 8-10**, at the **Gaylord Rockies Convention Center** in **Denver, Colo.** The 2019 Summit brought together nearly 1,700 thought-leaders from academia, business, and government to discuss cutting-edge energy issues and facilitate relationships to help transition technologies out of the lab. The Summit's main feature is the Technology Showcase—an 80,000 square foot hall that featured nearly 300 exhibitors and displays next-generation energy technologies.

## ARPA-E LEADERSHIP



**Lane Genatowski** is the Director of the Advanced Research Projects Agency-Energy (ARPA-E), responsible for oversight and leadership of the Agency. Prior to joining ARPA-E, Director Genatowski served as Senior Advisor to the Under Secretary for Science at the U.S. Department of Energy. Before entering government service, he was a managing partner at Dividend Income Advisors, a firm he founded in 2012 to invest in energy and power industry companies. Mr. Genatowski also led the Power Investment Banking Group at Wells Fargo Securities, LLC, held senior energy investment and management positions at Jefferies & Company, Inc., JP Morgan Chase, Kidder, Peabody & Co. and Bank of America, and began his career in the energy sector practicing law in New York City.



**Shane Kosinski** serves as the Deputy Director for Operations. He is responsible for oversight and operations of all ARPA-E programs. Kosinski served as the acting deputy director for ARPA-E and led the effort to stand up the ARPA-E Program Office and develop the means to efficiently and effectively obligate ARPA-E's Recovery Act funding. Kosinski previously worked in DOE's Office of the Chief Financial Officer,

where he led several agency-wide efforts for the 2009 Presidential Transition and the American Recovery and Reinvestment Act.



**Dr. Isik Kizilyalli** serves as the Associate Director for Technology and a program director. He is responsible for supporting oversight of all technology issues relating to ARPA-E's programs as well as assisting with program development, recruitment, and coordinating project management across the Agency. Prior to ARPA-E, Kizilyalli served as founder, Chief Executive Officer, and Chief Technical Officer of Avogy Inc., a venture

backed start-up. Previously, he was with Bell Laboratories, Nitronex Corporation, and solar PV startup Alta Devices where his team holds the world record for single junction solar cell conversion efficiency.



**Dr. Patrick McGrath** serves as the Chief Scientific Advisor, providing strategic support and guidance in program formation and technology transition. Previously, he served as ARPA-E's Deputy Director for Technology, leading the development of \$555 million in new programs, and as a Program Director. Before ARPA-E, McGrath served as a technical advisor at the Defense Advanced Research Projects Agency (DARPA), where he played a central role in program development, execution, and technology transition of DARPA programs in portable fuel cells, hybrid energy storage systems, carbon-based solar fuels, and electrochemical systems.



**Chanette Armstrong** currently serves as the Principal Deputy Director for ARPA-E. Prior to joining ARPA-E, Armstrong served as the Director of the DOE Office of Technology Transitions (OTT), where she oversaw DOE's Energy Investor Center, the Technology Commercialization Fund, and the coordination of technology transfer activities across the DOE complex. Prior to joining DOE, she worked as an attorney specializing in intellectual property law at several technology companies. Armstrong also worked as an engineer in various capacities including as an electrical engineer, systems engineer, and software engineer.



**Dr. Jennifer Gerbi** serves as the Deputy Director for Technology. She leads the technical staff in the development, launch, and execution of high-risk, high-reward energy R&D programs. Her programmatic focus at ARPA-E includes improving energy efficiency and management of buildings via advanced sensing systems and storage, novel insulating materials for windows, as well as renewable energy generation via

photovoltaics. Prior to ARPA-E, Gerbi worked at Dow Corning as a program leader in the company's Business and Technology Incubator, managing a global team as a business leader, and as an applied engineering and technical service leader.



**Dr. James Zahler** serves as the Associate Director for Technology-to-Market. He is responsible for oversight of all Technology-to-Market activities. He is also responsible for advising teams within the Full-Spectrum Optimized Conversion and Utilization of Sunlight (FOCUS) and OPEN portfolios, which include photovoltaic (PV), concentrated solar power (CSP), and heat engine technologies. Zahler joined from GT Advanced

Technologies, where he served as the senior director of product technology. Previously, Zahler served as a cell technology manager at BP Solar, supported BP Alternative Energy Ventures, and co-founded Aonex Technologies.

## CONTACT US

Members of the public, including news media, may contact ARPA-E by reaching out to:

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